

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
31 July 2003 (31.07.2003)

PCT

(10) International Publication Number
WO 03/061363 A3

(51) International Patent Classification⁷: C12N 5/10, 5/12,
15/63, 15/85, C12P 21/02, C12Q 1/02, 1/68

(21) International Application Number: PCT/US03/01149

(22) International Filing Date: 15 January 2003 (15.01.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/350,269 17 January 2002 (17.01.2002) US

(71) Applicant (for all designated States except US): **ALBERT EINSTEIN COLLEGE OF MEDICINE OF YESHIVA UNIVERSITY** [US/US]; 1300 Morris Park Avenue, Bronx, NY 10461 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MARTIN, Alberto** [CA/US]; 1579 Rhineland Avenue, Apt. 2J, Bronx, NY 10461 (US). **SCHARFF, Matthew, D.** [US/US]; 25 Pryer Manor Road, Larchmont, NY 10538 (US).

(74) Agents: **ARNOLD, Craig, J.** et al.; Amster, Rothstein & Ebenstein, 90 Park Avenue, New York, NY 10016 (US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(88) Date of publication of the international search report:
13 November 2003

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: MUTATIONS CAUSED BY ACTIVATION-INDUCED CYTIDINE DEAMINASE

(57) Abstract: Methods for causing mutations in genes expressed in eukaryotic cells are provided. The methods involve expressing an activation-induced cytidine deaminase (AID) in the cells. The mutated genes can be any gene that is operably linked to a promoter, where the gene is within about 2 kilobases of the promoter. Examples include antibody genes. Also provided are cells expressing AID. The cells can be from any eukaryote, and include hybridoma cells and myeloma fusion partners.

WO 03/061363 A3